



AVTECH ELECTROSYSTEMS LTD.

NANOSECOND WAVEFORM ELECTRONICS  
SINCE 1975

P.O. BOX 265  
OGDENSBURG, NY  
U.S.A. 13669-0265  
TEL: (315) 472-5270  
FAX: (613) 226-2802

TEL: 1-800-265-6681  
FAX: 1-800-561-1970

e-mail: [info@avtechpulse.com](mailto:info@avtechpulse.com)  
<http://www.avtechpulse.com/>

BOX 5120, LCD MERIVALE  
OTTAWA, ONTARIO  
CANADA K2C 3H4  
TEL: (613) 226-5772  
FAX: (613) 226-2802

## INSTRUCTIONS

MODEL AVH-SB

0 to 30V, 350 ps, 1 MHz

IMPULSE GENERATOR

SERIAL NUMBER: \_\_\_\_\_

### WARRANTY

Avtech Electrosystems Ltd. warrants products of its manufacture to be free from defects in material and workmanship under conditions of normal use. If, within one year after delivery to the original owner, and after prepaid return by the original owner, this Avtech product is found to be defective, Avtech shall at its option repair or replace said defective item. This warranty does not apply to units which have been disassembled, modified or subjected to conditions exceeding the applicable specifications or ratings. This warranty is the extent of the obligation assumed by Avtech with respect to this product and no other warranty or guarantee is either expressed or implied.

### TECHNICAL SUPPORT

Phone: 613-226-5772 or 1-800-265-6681

Fax: 613-226-2802 or 1-800-561-1970

E-mail: [info@avtechpulse.com](mailto:info@avtechpulse.com)

World Wide Web: <http://www.avtechpulse.com>

TABLE OF CONTENTS

**WARRANTY.....2**

**TECHNICAL SUPPORT.....2**

**TABLE OF CONTENTS.....3**

**INTRODUCTION.....4**

**SPECIFICATIONS.....5**

**EUROPEAN REGULATORY NOTES.....6**

**EC DECLARATION OF CONFORMITY.....6**

**DIRECTIVE 2002/95/EC (RoHS).....6**

**BASIC TEST ARRANGEMENT.....7**

**GENERAL OPERATING NOTES.....7**

**PERFORMANCE CHECK SHEET.....9**

Manual Reference: /fileserver1/officefiles/instructword/avh/AVH-SB, ed3.odt.  
Last modified February 29, 2024.  
Copyright © 2024 Avtech Electrosystems Ltd, All Rights Reserved.

## INTRODUCTION

The AVH-SB is a high performance DC-powered module capable of generating impulses of up to 30V into 50 $\Omega$  loads at repetition rates up to 1 MHz. The pulse width (at the 20% point) is fixed at 350 ps.

Instruments with the "-P" model suffix can generate 0 to +30V, whereas instruments with the "-N" model suffix can generate 0 to -30V.

The AVH-SB must be triggered by an external TTL pulse (> 50 ns) applied to the "IN" connector.

The output is designed to drive 50 $\Omega$  loads. (A 50 $\Omega$  load is required for proper operation.) The output is AC-coupled.

This instrument is intended for use in research and development laboratories.

## SPECIFICATIONS

|                                     |   |
|-------------------------------------|---|
| Model:                              | AVH-SB  |
| Amplitude <sup>3</sup> : (50Ω load) | 0 to 30 V   |
| Pulse width (20% rise time):        | ≤ 350 ps  |
| PRF:                                | 0 to 1 MHz  |
| Polarity <sup>5</sup> :             | Positive or negative (specify)  |
| Propagation delay:                  | ≤ 75 ns   |
| Jitter:                             | ± 15 ps (Ext trig in to pulse out)  |
| DC offset option <sup>6</sup> :     | Apply required DC offset to back-panel solder terminals<br>(± 50 Volts, 250 mA max) |
| Trigger required:                   | TTL (0 and +3 to +5V), > 50 ns  |
| Connectors:                         | In, Out: SMA, Power: Solder terminals   |
| Power requirements:                 | + 15 Volts, 200 mA  |
| Dimensions (H x W x D):             | 43 mm x 66 mm x 107 mm (1.7" x 2.6" x 4.2")   |
| Operating temperature:              | +5°C to +40°C   |

## EUROPEAN REGULATORY NOTES

### EC DECLARATION OF CONFORMITY

We

Avtech Electrosystems Ltd.  
P.O. Box 5120, LCD Merivale  
Ottawa, Ontario  
Canada K2C 3H4

declare that this pulse generator meets the intent of Directive 89/336/EEC for Electromagnetic Compatibility. Compliance pertains to the following specifications as listed in the official Journal of the European Communities:

EN 50081-1 Emission

EN 50082-1 Immunity

and that this pulse generator meets the intent of the Low Voltage Directive 72/23/EEC as amended by 93/68/EEC. Compliance pertains to the following specifications as listed in the official Journal of the European Communities:

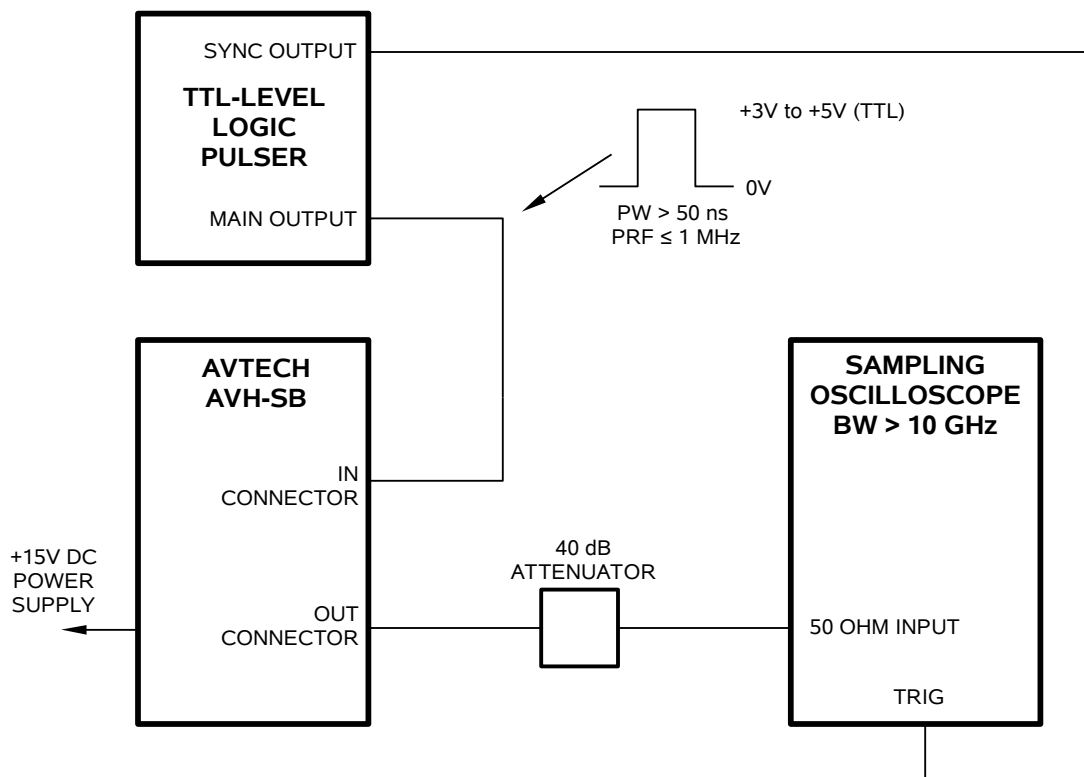
EN 61010-1:2001 Safety requirements for electrical equipment for measurement, control, and laboratory use



### DIRECTIVE 2002/95/EC (RoHS)

This instrument is exempt from Directive 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the Restriction of the use of certain Hazardous Substances (RoHS) in electrical and electronic equipment. Specifically, Avtech instruments are considered "Monitoring and control instruments" (Category 9) as defined in Annex 1A of Directive 2002/96/EC. The Directive 2002/95/EC only applies to Directive 2002/96/EC categories 1-7 and 10, as stated in the "Article 2 - Scope" section of Directive 2002/95/EC.

## BASIC TEST ARRANGEMENT



## GENERAL OPERATING NOTES

- 1) The bandwidth capability of components and instruments used to display the pulse generator output signal (attenuators, cables, connectors, etc.) should exceed 10 GHz.
- 2) The use of 40 dB attenuator on the output will ensure a peak input signal to the sampling scope of less than 1V.
- 3) The output amplitude is controlled by the one-turn "AMP" control.
- 4) Minor adjustments to the output pulse width and pulse shape can be made by adjusting the ten-turn  $T_R$  and  $T_F$  controls on the top of the module. Clockwise rotation of the  $T_F$  control causes the pulse width of the output to decrease by moving the falling edge of the waveform. Clockwise rotation of the  $T_R$  control causes the pulse width to increase by moving the leading edge of the waveform. The  $T_R$  and  $T_F$  controls also slightly affect the output amplitude. At the time of shipping they are set to provide maximum amplitude and a maximum pulse width of 350 ps (at the 20% rise point).
- 5) To DC offset the output pulse connect a DC power supply set to required DC offset value to the terminals marked "OS". The maximum attainable DC offset voltage is

+50 volts. (Option).

6) WARNING: The module may fail if triggered at a PRF greater than 1 MHz.

7) For additional information:

Tel: 613-226-5772

Fax: 613-226-2802

Email: [info@avtechpulse.com](mailto:info@avtechpulse.com)



PERFORMANCE CHECK SHEET